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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/691,357	10/22/2003	Richard Shaun Welches	YOU21B-US	4960
24222	7590	09/06/2006	EXAMINER	
MAINE & ASMUS 100 MAIN STREET P O BOX 3445 NASHUA, NH 03061-3445			CAVALLARI, DANIEL J	
			ART UNIT	PAPER NUMBER
			2836	

DATE MAILED: 09/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No. 10/691,357	Applicant(s) WELCHES ET AL.	
	Examiner Daniel J. Cavallari	Art Unit 2836	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 June 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

The examiner acknowledges a submission of the amendment filed on 6/23/2006.

The amendments to claims 1, 12, 13, & 17 are accepted.

The applicants arguments in regard to the 112 second paragraph have been considered but are not persuasive. The applicant argues that "ECA (enhanced conduction angle) is a unique PFC concept according to certain design criteria" and references several of the applicant's own patent applications which use the term "enhanced conduction angle" however, neither the patent applications cited nor the current response provide an adequate definition for the term which would enable one of ordinary skill in the art to make or use the invention. The applicant states that "ECA is a unique PFC (Power Factor Correction) "concept" but fails to define said concept and rather continues to explain ECA through the specific circuitry which the applicant claims creates it (ECA).

Because the applicant has failed to adequately define the use of the term "ECA", it will continue to be interpreted as analogous to "power factor correction".

The previously made 112 second paragraph rejection of claim 13 has been withdrawn in view of the amendment however claim 14 remains rejected as explained below.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-20 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

In regard to Claims 1, 12, 14 & 17

The applicant explains that "ECA (enhanced conduction angle) is a unique PFC concept according to certain design criteria" and references several of the applicant's own patent applications which use the term "enhanced conduction angle" however, neither the patent applications cited nor the current response provide an adequate definition for the term which would enable one of ordinary skill in the art to make or use the invention. The applicant states that "ECA is a unique PFC (Power Factor Correction) concept" but fails to explicitly define said concept or particularly pointing out the electrical properties which differentiate "ECA" from power factor correction.

Therefore, the claims will be examined as best understood in which "ECA" is analogous to power factor correction.

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In regard to Claims 17 & 20

The use of the term “enhanced conduction angle dual boost DC regulator” is unclear as the terms “enhanced conduction angle” and “dual boost” are not commonly used in the art and are not adequately defined by the applicant. The regulator will be examined as best understood to mean a “boost regulator”.

In regard to Claim 14

Claim 14 recites “...said feeding is derived from a load shed term” however “load shed term” is not a phrase commonly used in the art and therefore it is unclear what constitutes a “load shed term”. The examiner acknowledges the “load shed” is a commonly known phrase however a “load shed term” is ambiguous. It is unclear what is meant by “term”. The claim will be examined as best understood in which “load shed term” is taken to be any electrical property associated with the act of shedding load.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 19 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 19 recites the limitation "said curve" however "a curve" is not previously disclosed in Claim 1. There is insufficient antecedent basis for this limitation in the claim. It appears the applicant had meant Claim 19 to be dependant on claim 18. Claim 19 will be examined as best understood to be dependant on claim 18.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3, 5-16 & 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koenig (US 6,737,762), Van Sickle et al. (US 5,811,960) & Vos et al. (US 2005/0118021).

Koenig teaches:

In regard to Claims 1, 12-14, 18 & 19

- A variable speed generating device (104) producing differing amounts of power at different speeds (See Column 3, Lines 25-46 & Column 4, Lines 36-51 & Figure 4).
- A hybrid UPS power supply read on by components (106, 118, 108, & 116) (See Figure 3) coupled between an AC line (300) and a load (102) via energy supply

circuit (120) and line (122) (See Figure 4) wherein said hybrid UPS is comprised of a regulator section (106 & 118) coupled to an inverter (108) and an energy storage module (116) coupled there between (See Figure 4).

- Switchably coupling an AC line (300) to the hybrid uninterruptible power supply via switch 302 (See Figure 4).
- The generator is coupled to the hybrid uninterruptible power supply when the AC line is disconnected via switch (302) (See Figure 3 & Column 5, Line 59 to Column 6, Line 34) [The examiner notes that the generator is coupled to the UPS when said AC line is disconnected seeing as the generator is continuously connected to the UPS during operation].
- The load (102) being fed from the hybrid UPS (106, 118, 108, & 116) [As is the case when the AC utility power is not available] and temporarily feeding the load until the generator is started (See Figure 3 & Column 5, Line 59 to Column 6, Line 34).

Koenig fails to teach wherein the UPS is switchably coupled to the generating device (104). Van Sickle et al. (hereinafter referred to as Van Sickle) teach an uninterruptible power supply system in which a generator (280) is connected to an uninterruptible power supply, read on by the synchronous A.C machine & Flywheel (262), Rectifiers (150, 252) and inverter (152) in which the UPS is switchably coupled with an energy generating device, read on by the generator isolation switch (244) (See Figure 2 & Column 6, Line 31 to Column 7, Line 23).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate a switch, as taught by Van Sickle, into the power supply system of Koenig in which to isolate the generator (104) of Koenig from the rest of the circuit. The motivation would have been to provide a means to isolate the generator in the event that maintenance or a fault was present in the system.

Koenig teaches a variable speed generating device (104) producing differing amounts of power at different speeds (See Column 3, Lines 25-46 & Column 4, Lines 36-51 & Figure 2) but fails to explicitly teach how the variable speed generator operates to meet the varying load requirements.

Vos et al. teaches a power generation system in which the generator uses a microprocessor and a "look-up table" in order to provide the correct operating criteria (including engine speed) in which to operate the generator wherein the table values represent a set of pre-programmed points on a curve of optimum engine speed for a specific load [The examiner notes that Von et al. teach determining engine speed engine speed based on output power efficiency for a given load] (See Paragraph 9).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Vos et al. by which a microprocessor and look-up table are used to control the generator. The motivation would have been to efficiently and automatically control the generator thereby maximizing output power efficiency (See Paragraph 9).

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Koenig further teaches:

In regard to Claim 2

- The inverter (108) (See Figure 3) consisting of a DC to AC inverter (See Column 3, Lines 25-46).

In regard to Claim 3

- The variable speed generator consisting of a sterling engine (See Column 3, Lines 25-46).

In regard to Claim 5

- A switch (414) between the inverter (108) and the load (400A) (See Figure 4)

In regard to Claim 6

- A switch (302) coupling the UPS to the AC line (See Figure 4)

In regard to Claim 7

- The energy storage module (116) consisting of a battery (See Figure 4 & Column 3, Lines 47-67)

In regard to Claim 8 & 9

- A bypass switch (302) coupling said AC line (300) with the load (400B) (See Figure 4)

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- The switch being a bi-directional thyristor (See Column 4, Lines 52-66)

In regard to Claims 10 & 11

- A bypass switch (416) coupling said generator (104) with the load (400B) via the components (106, 108. & 414) (See Figure 4)
- The switch being a bi-directional thyristor (See Column 4, Lines 52-66)

In regard to Claim 14

- Wherein said feeding is derived from the loss of AC power (See Figure 3 & Column 5, Line 59 to Column 6, Line 34). [The examiner notes that "power" reads on "load shed term" as power is an electrical property associated with load shedding]

In regard to Claim 15

- Charging the energy storage module (116) while simultaneously providing output power to the load (See Column 4, Lines 17-35).

In regard to Claim 16

- Correcting for surge (See Column 4, Lines 17-35).

In regard to Claims 18-19

- The table values representing a set of pre-programmed points on a curve of optimum engine speed for a specific load (See Vos et al.

Claims 4, 17, & 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Koenig, Van Sickle et al., Vos et al. & Symonds (5,610,451)

In regard to Claims 4 & 20

Incorporating all arguments of the power supply system taught by Koenig, Koenig teaches the use of a regulator read on by components (106 & 118) but fails to teach a power factor correction, boost DC bus voltage regulator.

Symonds teaches an uninterruptible power supply comprising a power factor correcting, DC boost voltage regulator read on by components (12, 20 & 28) (See Abstract, Figure 1 & Column 3, Line 61 to Column 4, Line 49). Symonds teaches a rectifier (20) receiving an AC input which is converted to a DC voltage which is then boosted by the boost converter (22) and power factor corrected by controller (40) (See Figure 2) which controls the boost converter (22).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the regulator taught by Symonds in place of the regulator (106) taught by Koenig. The motivation would have been to provide a means to adequately control the voltage which is outputted to the DC bus and reduce power loss by controlling the power factor.

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In regard to Claim 17

Koenig teaches:

- A variable speed generating device (104) producing differing amounts of power at different speeds (See Column 3, Lines 25-46 & Column 4, Lines 36-51 & Figure 2).
- A hybrid UPS power supply read on by components (106, 118, 108, & 116) (See Figure 3) coupled between an AC line (300) and a load (102) via energy supply circuit (120) and line (122) (See Figure 3) wherein said hybrid UPS is comprised of a regulator section (106 & 118) (See Figure 3) coupled to an inverter (108) and an energy storage module (116) coupled there between (See Figure 3).

Koenig fails to teach:

- Wherein the UPS is switchably coupled to the generating device (104).
- A power factor correction, boost DC bus voltage regulator
- The speed of the generator processed via a lookup table

Van Sickle et al. (hereinafter referred to as Van Sickle) teach an uninterruptible power supply system in which a generator (244) is connected to an uninterruptible power supply, read on by the synchronous A.C machine & Flywheel (262), Rectifiers (150, 252) and inverter (152) in which the UPS is switchably coupled with an energy generating device, read on by the generator (28) (See Figure 1 & Column 5, Lines 40-71).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate a switch, as taught by Van Sickle, into the power supply system of Koenig in which to isolate the generator (104) of Koenig from the rest of the circuit. The motivation would have been to provide a means to isolate the generator in the event that maintenance or a fault was present in the system.

Incorporating all arguments of the power supply system taught by Koenig, Koenig teaches the use of a regulator read on by components (106 & 118) but fails to teach a power factor correction, boost DC bus voltage regulator.

Symonds teaches an uninterruptible power supply comprising a power factor correcting, DC boost voltage regulator read on by components (12, 20 & 28) (See Abstract, Figure 1 & Column 3, Line 61 to Column 4, Line 49). Symonds teaches a rectifier (20) receiving an AC input which is converted to a DC voltage which is then boosted by the boost converter (22) and power factor corrected by controller (40) (See Figure 2) which controls the boost converter (22).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the regulator taught by Symonds in place of the regulator (106) taught by Koenig. The motivation would have been to provide a means to adequately control the voltage which is outputted to the DC bus and reduce power loss by controlling the power factor.

Koenig teaches a variable speed generating device (104) producing differing amounts of power at different speeds (See Column 3, Lines 25-46 & Column 4, Lines

36-51 & Figure 2) but fails to explicitly teach how the variable speed generator operates to meet the varying load requirements.

Vos et al. teaches a power generation system in which the generator uses a microprocessor and a "look-up table" in order to provide the correct operating criteria (including engine speed) in which to operate the generator (See Paragraph 9).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the teaching of Vos et al. by which a microprocessor and look-up table are used to control the generator. The motivation would have been to efficiently and automatically control the generator thereby maximizing output power efficiency (See Paragraph 9).

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel J. Cavallari whose telephone number is (571)272-8541. The examiner can normally be reached on Monday-Friday 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Sircus can be reached on (571)272-2800 x36. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Daniel Cavallari

August 23, 2006



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